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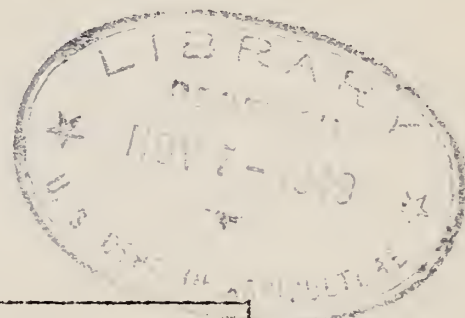
SOIL CONSERVATION LITERATURE  
SELECTED CURRENT REFERENCES

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May/June 1937

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Compiled By The Library Staff Of The Soil Conservation Service  
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PERIODICAL ARTICLESContour Tillage

Five inch rain couldn't get away. Kans.Farmer 74(32):29. Mar.13,1937.

A Greeley county, Kansas, farmer reports successful experience with contoured land. With the 'five shovel' or more commonly known 'Peacock machine,' he seeded 450 acres of wheat on the contour and found this wheat to be the best of his crop.

Besides conserving moisture he believes that contouring has solved his wind erosion problem for his land showed no tendency to sift throughout the summer and fall.

Howard,I.M. "Crooked row" farming found best. South.Agr. 67(4):31. April 1937.

Gully control, terracing and contour farming increased yields to more than twice what they were 11 years ago.

Dams

Doggett,Denzil. Practical soil mechanics for small dams. Grain-size analysis, Proctor density test, compaction with sheeps-foot-rollers and California section advantageously employed. Engin.News-Rec. 118(11):409-412. illus. Mar.18,1937.

Outline of practice of Indiana Department of Conservation in building some 30 small earth dams since 1928.

Dramba,D . Piatra uscata armata, sistemul reboget. Revista Padurilor 48(11):1189-1211. November 1936.

Reinforced dry-rock dams for torrent and erosion control.

Noyes,J.R. Conchas dam and reservoir project. Work begun on combined flood control and irrigation water storage project on South Canadian River in New Mexico after extensive study of stream flows and of possible dam sites - dam adapted to peculiar rock condition in river gorge. Engin.News-Rec.118(15):541-545. illus. Apr.15,1937.

"This article has to do with the early work and the design basis of the dam."

Van Meeten,E.J. Specifications of work to be done in building a dam. Farming So.Africa 11(128):453-454. illus. November 1936.

Specifications for earth dam-walls.





## Evaporation

Leighly, John. A note on evaporation. Ecology 18(2):130-138. illus. April 1937.

"References cited": p.198.

"A theory of the dependence of rate of evaporation (into moving air) is elaborated: it is based on the hypothesis of the existence of a laminar boundary layer of air, having a thickness that varies with wind velocity, next to the evaporating surface. Rate of evaporation then becomes equivalent to rate of molecular diffusion of water through this layer. All the terms involved in an expression for rate of diffusion through the boundary layer can be given a rational expression except thickness of the layer. For small surfaces, such as the transpiring surfaces of plants and evaporimetric surfaces, its thickness may be expressed as an empirical function of wind velocity and length of the evaporating surface in the direction of movement of the wind. Available experimental data seem to show that this thickness is proportional to a power smaller than unity of the quotient obtained by dividing wind velocity by the linear dimension of the surface measured in the direction of wind movement.

"The theory thus developed is then used as the basis of a more rigorous definition of 'relative transpiration' than has been formulated. An experimental procedure is described whereby this rigorous 'relative transpiration' or its reciprocal, 'transpiration resistance,' may be obtained. Experimentation directed toward this end must, however, make use of evaporimetric surfaces that are aerodynamically similar to the transpiring surfaces under investigation, rather than of evaporimeters having arbitrarily selected sizes and shapes."

Meyer, A.F. and Lovens, A.S. Determining evaporation losses from Weather Bureau data. Engin. News-Rec. 118(13):481-483. illus. Apr. 1, 1937.

"Restudy of evaporation formula confirms its practical value and defines a new coefficient applicable to the computation of water losses from large lakes."

## Farm Ponds

Livingston, L.F. Ponds must have depth to withstand drought U. S. Department of agriculture points out. DuPont de Nemours & Co., Inc., E.I. Agr. News Letter 4(12):181-183. December 1936.

Quotes press release of U.S.D.A.; makes suggestions for blasting deep ponds with dynamite and gives specifications for post-hole loading.

Oberlin, R.W. Farm ponds pass critical tests. Soil Conserv. 2(9):210-211. illus. March 1937.

## Floods and Flood Control

[American society of civil engineers] National aspects of flood control. A symposium. Amer. Soc. Civ. Engin. Proc. 63(3):423-537. March 1937.

Contents: Federal responsibility for flood control, by J.J. Davis, p.423-428; Problems in developing a national flood-protection policy, by Abel Wolman, p.429-439; Economic aspects of flood control by H.B. Jacobs, p.441-448; Flood conditions in New England, by W.F. Uhl, p.449-483; The New York floods of 1935 and 1936, by A.W. Harrington and Hollister Johnson, p.485-493; Floods in the upper Ohio river and tributaries, by E.F. Moore and H. A. Thomas, p.495-

Floods and Flood Control (cont'd)

[American society of civil engineers] (cont'd)

518; An ideal organization for the river and flood service of the United States Weather Bureau, by M.W.Hayes, p.519-522; Federal plans for flood control, by W.E.R.Covell, p.523-535.

[Herbert, P.A.] More floods if engineers dominate future control policies. Forestry News Dig., March, 1937, page 1.

Member of Michigan Planning Commission contends that the major problem "can only be solved by erosion experts, foresters, and land economists."

Jacks, G.V. Flood and soil. Spectator 5668:262-263. Feb. 12, 1937.

"Men have dreamed of a posterity dominated by helicopters, hygienic clothing and beautiful cities of skyscrapers, but present indications are rather that the next, and perhaps the first really scientific, civilisation will be based on more prosaic things such as contour terraces, afforestation, dams and, above all, the maintenance and improvement of grass."

Morgan, A.E. Control of great floods. Engin. News-Rec. 118(11):401-403. illus. Mar. 18, 1937.

"A task of unprecedented magnitude, flood control requires that every possible method be studied, including headwater and soil control. It should be treated as part of integrated river control for all purposes."

Rorty, James. Floods can be controlled. Nation 144(8):205-207. Feb. 20, 1937.

The author traveled to TVA headquarters at Knoxville, Tenn. to seek the answers to two questions: Is a real solution of the problem of flood control possible? How much would it cost, and would it be worth the price?

Stresses need for scientific as well as engineering attack on the problem.

Strong, P.H. The great flood of the Ohio. Mil. Engin. 29(165):157-162. illus. May/June 1937.

"A word is not amiss concerning the efforts to tie in soil conservation and reforestation with flood control. The writer has nothing but enthusiasm for the two projects. He believes that they are at least as important for the welfare of the country as is flood control, and should be diligently persecuted. But it simply will not do to advance them as effective flood control measures... If we want the real answer to the question: 'Why do floods get bigger?' we must look to the law of probability, which tells us that the longer the country lives the more it will run up against those super floods whose infrequent occurrence span many generations in their cycle."

"Super flood" demands prevention at source. Scholastic 30(3):8. illus. Feb. 20, 1937.

Weybright, Victor. The valleys and the plains. Floods, droughts and Morris L. Cooke. Survey Graphic 26(3):145-149. illus. March 1937.

Morris L. Cooke's philosophy of flood control is interpreted as that of considering "land-water-and-man as a whole." He believes that "the way out is to put into practice comprehensive plans, from the Soil Conservation Act to giant power dams."

Willows for flood control. Penn. Dept. Forests and Waters. Serv. letter 8(3):4. Jan. 21, 1937.



## Floods and Flood Control (cont'd)

Woods, A.F. The control of raging waters. Sci. Mo. 44(5):409-417. illus. May 1937.

General article on flood and erosion control, dealing most specifically with the plan for river bank erosion control conceived by Mark W. Woods, of Lincoln, Nebraska, and which employs the use of the Bignall pile.

Zon, Raphael. Can floods be controlled? Forestry News Dig., March 1937, pages 4-5.

Reports findings of the Lake States Forest Experiment Station which "contribute tangible knowledge of the part which cleared pastures and grazed and ungrazed woodlots play in preventing run-off and erosion on steep slopes."

## Groundwater

Groundwater levels in Utah. Engin. News-Rec. 118(16):597. Apr. 22, 1937.

"Water levels in most of the larger groundwater areas of Utah stood higher in the fall and winter of 1936 than in the corresponding period of 1935 according to a survey made by G.H. Taylor and H.E. Thomas of the U.S. Geological Survey in cooperation with the state engineer..."

"The rather general rise in level indicates that recharge through groundwater basins in Utah, most of which are artesian, has been greater during the last year than the discharge. This has been caused in part by increased precipitation and in part by the adoption of conservation measures, consisting chiefly of the control of waste water from artesian wells."

Mead, H.W. Restoration of ground water levels and lake levels in Wisconsin. Bul. Assoc. State Engin. Soc. 11: 3, 37-40. July 1936.

"The work of restoring ground water levels and lake levels has been one of the important state-wide programs under both WERA and WPA. This work is divided into two divisions; the control of the flow of water in the Central Wisconsin drainage district and the restoring of lake levels. Low, flat land, consisting principally of peat soil, has been ditched, with ditches ranging from 6 to 20 feet wide. These ditches were controlled by construction of small dams, raising the ground water level and bringing the land back to its natural state" - H.E. Babbitt, in Jour. Amer. Waterworks Assoc. 28(12):2012. December 1936.

## Gully Control

Eargle, D.H. When is a gully stable. Soil Conservation 2(10):225-227. illus. April 1937.

Gunnies for gullies. Prairie Farmer 109(8):31. Apr. 10, 1937.

"Last spring, Glynn Leonard, Dubuque County, Iowa, filled several old gunny sacks with bluegrass sod, leaving plenty of dirt on the roots. These sacks were placed across small ditches, effectively damming up rain water and eventually filling the gullies. The sacks soon decayed and never interfered with farming operations."

Ireland, H.A. Rotation of gully heads, a new conservation practice for gully control. Soil Conservation 2(10):228-229, 244. illus. April 1937.

"The thesis presented in this paper was developed in conjunction with Dr. Maurice Donnelly in November 1936."

### Gully Control (cont'd)

Sharp, J.A. Erosion can be stopped, even on a hillside field. Farmer-Stockman 50(6):161. illus. Mar. 15, 1937.

An Arkansas farmer tells of his experience in controlling the kind of soil erosion in which ditches get started through open fields.

### Photogrammetry

Bibliography of photogrammetry. Photogrammetric Engin. 2(4):1-117. Oct/Nov/Dec. 1936.

"This bibliography of photogrammetry is a compilation from sources available to the Committee on Bibliography of the American Society of Photogrammetry... The arrangement is alphabetical by authors, followed by topical index... There is also presented a partial list of patents allied to the science of photogrammetry."

### Rainfall

Cochrane, V.H. and Sherman, L.K. Rainfall intensities and frequencies. Amer. Soc. Civ. Engin. Proc. 63(4, part 1):792-795. April 1937.

Discussion of paper by A.J. Schafmayer and the late B.E. Grant published in February, 1937, Proceedings.

### Run-off

An artificial "rainstormer" to study flood run-offs. Bul. Amer. Met. Soc. 18(3):139-140. March 1937.

Tests made in the Boise, Id. region with a rainstorm machine developed by the U.S. Forest Service show that plant cover has a decided influence upon the amount and character of the flow of mountain streams, which, in the Boise section, are utilized for irrigation.

"As one outstanding result, the studies showed that the kind and density of the vegetation is more important in influencing run-off and erosion than is steepness of slope or intensity of rainfall."

Aylen, D. and Roberts, R.H. Soil conservation. Rhodesia Agr. Jour. 24(2):90-120. February 1937; 24(3):173-222. March 1937.

Brings up to date and replaces the earlier Departmental Bulletin no. 92, "Soil Erosion," which is now out of print.

To be continued in forthcoming issues of the Journal.

These chapters deal with the erosion problem in Rhodesia, progress towards control; veld and gully erosion; protective works, contour ridges and various methods of strip cropping.

Day, Gene. How tree cover affects snow melt. Taylor-Rochester 27(1):15. First Quarter 1937.

Research conducted by the U.S. Forest Service on experiment plots on the Boise River watershed has demonstrated that "the retardation of rate of snow melt by forest cover is invaluable in increasing the duration of run-off."

Dickey, P.B. Intense rains bring out value of controlling run-off to save soil and water. U.S. Soil Conserv. Serv. Soil Conserv. Digest (Cal.-Nov. Newsletter) 3(6):4-7. March 1937.



## Silt

Grover, N.C. and Howard, C.S. The passage of turbid water through Lake Mead. Amer. Soc. Civ. Engin. Proc. 63(4 part 1):643-655. illus. April 1937.

"Turbid water carrying a considerable load of fine silt was discharged from Lake Mead, above Boulder Dam, in Arizona and Nevada, at three different periods during 1935 when the reservoir was 70 to 90 miles long and contained from 4 000 000 to 5 000 000 acre-ft of water. Apparently, it flowed through the reservoir essentially unmixed. Chemical analyses of the water entering into, and discharged from, the reservoir corroborate the conclusions drawn from the observations of silt as to the occasional discharge of essentially unmixed water. The phenomenon is ascribed to the greater specific gravity of the incoming water relative to the generally clear water at the surface of the lake, due probably, in part, to its silt load. A practical significance is suggested with respect to the possibility of increasing the passage of fine silt through a reservoir, thereby prolonging its effective life. References are made to other known occurrences of similar phenomena."

Mitchell, R.H. and Hall, G.R. Sedimentation in a small artificial lake. Science n.s. 85(2209):426-427. Apr. 30, 1937.

Observations taken from a small artificial lake on the campus of Muskingum College, New Concord, Ohio.

Serious silt problem seen at Loup river. Elect. World 106(32):2436. Aug. 8, 1936.

"Engineers believe they have hit on the right plan" for overcoming the problem. "On Crab Tree Island, 4 miles west of Genoa, Nebraska, they will construct a huge settling basin which will collect the silt and sand in the Loup and keep it from entering the canal. The desilting basin is more than 10,000 ft. long and 200 ft. wide and will hold the water diverted into it, kept at constant level by means of a skinning weir at the upper end."

## Soil Conservation

Benedict, M.R. An appraisal of aspects of the transition program for agriculture. Jour. Farm Econ. 19(1):28-47. February 1937.

Paper no. 63 of the Giannini Foundation of Agricultural Economics. Read at the 27th annual meeting of the American Farm Economics Association, Chic., Ill., Dec. 28, 1936.

Discussion by W.C. Lowdermilk: pp. 40-45.

Discussion by J.A. Hopkins: pp. 45-47.

Elliott, F.F. Economic implications of the agricultural conservation program. Jour. Farm Econ. 19(1):13-27. February 1937.

Paper read at the 27th annual meeting of the American Farm Economic Association, Chic., Ill., Dec. 28, 1936.

Let people decide if they want Soil Conservation Districts Act. Ariz. Producer 16(3):1, 7-8. illus. Apr. 15, 1937.

Arguments for and against the proposed Soil Conservation Districts Law in Arizona, known as Senate Bill 207.

Nelson, Lowry. Utah's new Soil Conservation District Law. Utah Farmer 57(17): 7. Apr. 10, 1937.

This law was passed by the 1937 legislature.

## Soil Conservation (cont'd)

Planning a conservation program for an individual farm. Clemson Agr.Col. School of Voc.Educ.,Agr.Educ.,Dept.of Agr.Educ.13(1-2):4-31. illus. Sept.-Oct.1936.

Points covered are: measuring areas on farm maps; making outline maps of farms; studying soil types, degrees of slope and erosion of farms as well as land uses; planning future land uses; land uses and conservation practices for major soils of the Piedmont plateau.

Wilson,M.L. Agricultural conservation - an aspect of land utilization. Jour. Farm Econ.19(1):3-12. February 1937.

Paper read at the 27th annual meeting of the American Economic Association, Chic.,Ill. Dec.28, 1936.

Enumerates a number of lines of action, each involving conservation and all converging on a common point.

Recommends the setting up of soil conservation districts in accordance with the "Standard State Soil Conservation Districts Law" because "such a district can be an efficient institutional agency for the purpose of a land-use program at the same time that it can carry out to the full the principles of economic democracy in agriculture."

## Soil Erosion. Foreign Countries.

Campaign to check soil erosion. African World 138(1785):57. Jan.23,1937.

"Steady progress is being made by the Union Department of Agriculture and Forestry with its anti-soil erosion campaign. Launched in 1933, the campaign to check soil erosion has been adopted throughout the country, and the results attained are already considerable.

"Up to the end of August last, which is the latest date for which statistics are available, when the campaign has been in progress 3 1/2 years, 12,959 dams had been built in various parts of the Union at an aggregate estimated cost of £1,513,156. These dams form part of the soil erosion control plan and have other obvious uses.

"During the present year the Government intends also to tackle the problem of drift sands. This is an evil which has assumed alarming dimensions in certain coastal areas, where drift sands have encroached on Government and privately owned property. A State scheme is to be instituted in terms of which facilities will be granted to landowners who are prepared to undertake the reclamation of drift sand areas on their properties."

Erosion in the Punjab. Nature 139(3517):541-542. Mar.27,1937.

"A conference held at Simla recently affords evidence that the importance of the erosion question in the outer Punjab Hills is now receiving serious attention. It was presided over by Sir Herbert Emerson, the other members consisting of the revenue member, the financial commissioner for development, three commissioners for divisions, two deputy commissioners, a representative of the Finance Department, a chief engineer of irrigation, the chief conservator of forests, the conservator of the Eastern Circle and the forest research officer. The assembly of so influential a body shows the importance now attached to this problem by Government."

Greene,H. Soil problems of the Anglo-Egyptian Sudan. Empire Jour.Exp.Agr. 5(17):1-10. illus. January 1937.  
Soil erosion:p.9.



Soil Erosion. Foreign Countries. (Cont'd)

Greene, H. (Cont'd)

"Practically no information is available in the Sudan on the occurrence of soil erosion along the fringe of the rain-belt... To ascertain the extent of soil erosion now occurring in the Sudan and to devise means of control is an urgent responsibility to be faced by the Government."

Lester-Smith, W.C. Soil erosion. Trop. Agr. [Ceylon] 88(2):92-107. illus. February 1937.

"This publication was compiled on the suggestion of the Executive Committee of the Central Board of Agriculture that a summary of the Report of the Committee on Soil Erosion (Sessional Paper III of 1931) be published..."

Erosion control measures in Ceylon are presented in some detail. It is stated that the Soil Erosion Committee considered that it was possible to control the movement of surface water and stop the downward movement of surface soil by the use of ground cover; drainage systems are to be regarded as a second line of defense against soil erosion. Various drainage systems are described.

Mention is also made of other preventive works, such as stone terracing, construction of contour and individual platforms and contour trench systems.

Illustrations of interest are as follows:

Fig. 1. Mr. C.E.A. Dias' method of regrading steep side-drains, facing p. 98. - Fig. 2. Side drain... facing p. 99. - Fig. 3. Java silt pits, facing p. 99. - Fig. 4. Mr. Horsfall's step and water cushion for prevention of scour in main down drains, p. 100. - Fig. 5. Mr. J. Horsfall's "Step and water cushion system" for main drain, facing p. 102. - Fig. 6. Contour platforms in rubber, facing p. 102. - Fig. 7. Contour platforms in rubber, facing p. 103. - Fig. 8. Contour platforms in rubber showing water held up after heavy rain, facing p. 103. - Fig. 10. Mr. Du Pré Moore's catchwater bund and trench system, facing p. 105. - Fig. 11. Mr. Du Pré Moore's contour trenches after a heavy shower, facing p. 106.

Norris, R.V. Soil erosion. Tea Quart. 9(4):133-144. December 1936.

Address given at Badulla, 7th November, 1936.

Principles of erosion control in Ceylon and recommendations for future progress.

Emphasizes the importance of soil cover "as the first line of defense against erosion." Reports briefly to drains, hedging, terracing and similar works.

Oosthuizen, E.A. Providing for the safe discharge of flood waters at anti-soil-erosion works. A design of spillways. Farming So. Africa 12(131):78-79. illus. February 1937.

Article by the engineer, Grootfontein school of agriculture, Middelburg, C.P.

Perry, A.A. Bald peaks re-clothed with trees. One "man of trees" shows what can be done to stop soil erosion for Caledon hilltops - grass already starting to grow as sand drifting is checked. Farmer Mag. 34(2):6, 15. illus. February 1937.

Soil erosion control in Canada.

The problem of soil conservation on lands adjacent to main roads. Rhodesia Agr. Jour. 34(2):142-145. illus. February 1937.

Highway erosion and its control in Rhodesia.



Soil Erosion.    Foreign Countries. (Cont'd)

Timson, S.D.    Natural protection from soil erosion.    Rhodesia Agr. Jour. 34(2): 146-158.    February 1937.

Suggestions for erosion control in Rhodesia.

"There is not sufficient experience available at present to dogmatise as to the types of plants best suited to the special conditions arising on the sides of gullies, where the sub-soil is completely exposed, and this is a problem of some difficulty owing to the marked infertility of the sub-soil in the red, chocolate, and black loam soil areas; but definite recommendations can be made with regard to grassing the wet vleis, and dry valleys, which are not yet severely eroded, and which are being utilized as the channels to receive the water from contour ridges and storm drains."

Soil Erosion.    U. S.

Brown, H.B., jr.    Slope factors in soil erosion with illustrations from the Kentucky karst.    Soil Conservation 2(10):240-242.    illus.    April 1937.

Craig, D.B.    Contour planting and irrigation of orchards to control erosion.    Utah Farmer 57(15):3.    Mar. 10, 1937.

"In the distribution of water to a contour planted orchard it is necessary to have water under control at all times. For this reason, pipes or flumes are usually employed. Pipe irrigation systems are more desirable since they are buried in the ground and do not hinder cultivation operations...Advantages of pipe line and contour irrigation furrow system are as follows:

1. Duty of water is greater due to control of flow and avoidance of waste.
2. Seepage losses are reduced to a minimum.
3. Water can be run under pressure across low spots and ridges.
4. Expense of cleaning and maintaining open ditches is eliminated.
5. Pipe line does not interfere with cultivation operations.
6. Erosion of top-soil is minimized by absolute control of amount of flow delivered to each furrow.
7. Soil fertility losses due to excessive deep percolation are reduced.
8. More uniform wetting all of ground, insuring better tree growth and larger crops."

Happ, S.C.    Fertile valleys laid waste by upland erosion.    Soil Conserv. 2(9): 194-198.    illus.    March 1937.

Information obtained on stream and valley sedimentation in the Wells drainage district in Lafayette County, northern Mississippi "emphasizes the futility of attempting control of drainage and sedimentation problems without consideration of the upland erosion which is the fundamental cause."

Normann, O.K.    Weed control and eradication on roadsides; a study of present practices and their practical application.    Public Roads 17(12): 281-300.    illus.    February 1937.

Bibliography: pp. 299-300.

"Weeds on roadsides help to prevent erosion by water, wind or traffic. Their usefulness in this respect may easily be overestimated unless other factors are considered. Most weeds, particularly those on newly constructed roads, are annuals having a luxuriant top growth during the late spring and summer months. Their root systems, however, do not afford the same protection as the more extensive root systems of perennials. From late fall to well



Soil Erosion.    U. S. (Cont'd)

Hormann, O.K. (Cont'd)

into the spring months, the period of greatest erosion in most localities, root systems of annuals afford little protection. Recent studies by the United States Department of Agriculture have shown that for each climatic or soil condition there is a type of desirable vegetation that requires little or no encouragement to grow and that will prevent soil erosion equally as well as undesirable varieties do....Weeds give way to more desirable vegetation on roadsides where proper maintenance methods are practiced."

Querna, G.H.    Snow may become destroyer of soil.    Wash.Farmer 62(4):91. illus.    Feb.18,1937.

"Steep north slopes are characteristic of the Palouse country and much of the Walla Walla area. Snowbank erosion has played an important role in their formation, especially since man has removed the natural grass covering."

Rock walls hold run-away soil.    Kans.Farmer 74(32):8.    illus.    Mar.13,1937.

Illustration shows retaining wall devised by a Kansas farmer to hold run-off soil in ravines. It is suggested that such a device could well be used on many farms as a supplement to a program designed to first check run-off soil back on the fields.

Sears, P.B.    Highway menace.    Soil Conservation 2(10): 230-232,243.    illus. April 1937.

"The term applies to the serious and widespread loss of soil which has been incident to highway construction and maintenance in many parts of the United States."

Sharpe, C.F.S.    "Brushing out" the banks of streams.    Soil Conserv.2(10): 221-224.    illus.    April 1937.

"Along many of the creeks and smaller rivers of the country one may see today denuded banks bearing fresh scars of the ax, brush hook, and fire. Such are the signs of local 'drainage' and 'mosquito-control' projects on which vast sums are being expended to speed the removal of flood waters by clearing or 'brushing out' the flood channels. The effects of such clearing are much more intricate than is generally realized and should be given full consideration before this work is carried further. Temporary improvement of flood conditions and sanitation may be attained in the areas treated but what of the people, lands, and cities downstream? How much will floods on the major rivers be increased by rushing the water down the tributaries? Trees cut along some of the streams cannot be replaced for 50 years and by that time what will erosion have done to the banks; how much sand will have been deposited on arable lands farther down the river? Potential destruction of valuable bottom lands makes this practice of brushing out demand investigation and observation by the Soil Conservation Service."

Tree planting law for Kansas.    Amer.Forests 43(5):248.    May 1937.

"Land owners of Kansas will be required to plant shrubs, grasses and trees as means of controlling soil erosion in accordance with an act signed on March 23 by Governor Walter A.Huxman. This repeals a law previously passed by the State Legislature requiring the listing of soil when ordered by the State Supreme Court on the ground that it violates statutes against trespassing and invasion and was not uniform in application.

Soil Erosion.    U. S. (Cont'd)

Tree planting law for Kansas. (Cont'd)

"The secretary of the State Board of Agriculture is charged with the enforcement of the new act, but authority to order the planting of trees, shrubs, or grasses is vested in the several boards of county commissioners, who may issue warrants in payment for the work."

Zeasman, O.R.    Strip crops and terraces best ways to reduce erosion. Wis. Agriculturist and Farmer 64(8):21.    Mar. 27, 1937.

O.R. Zeasman, Wisconsin engineer, warns against "depending on so-called erosion control crops for all the protection against water injury in spring or summer freshets... While not under-estimating the effectiveness of crop cover in protecting soil against water erosion, Zeasman urges people to sense the limitations."

Soil moisture.

Beeler, M.N.    What method of fallow.    Capper's Farmer 48(5):13.    illus. May 1937.

Compares three common practices for fallow which at the most brought about moisture penetration of only 45 inches with a more recent development of listing furrows. Examples of the latter are mentioned some of which caused soil to be wet to a depth of 60 inches.

Carbery, M.    and Chakladar, M.N.    Studies on soil moisture. I. Movement of soil-moisture under field conditions. Indian Jour. Agr. Science 6(6):1201-1217.    illus.    December 1936.

"References": p. 1217.

Report of studies at Dacca Farm, Bengal.

Diller, O.D.    Soil moisture content during critical periods in the regeneration of previously grazed farm woodlands. Jour. Forestry 35(4):399-402.    April 1937.

Bibliography: 401-402.

Esselen, D.J.    Does cultivation conserve soil moisture?    Farming So. Africa. 12(130):6-12.    illus.    January 1937.

"Literature cited": p. 12.

"The results of an experiment" at the sub-tropical Horticultural Research station, Nelspruit, South Africa, "comparing the rates of water lost from a sandy soil under four treatments, viz., soil mulch, straw mulch, non-mulch and supporting a stand of weeds, are presented.

"Some of the fallacies and misinterpretations which have given rise to the mistaken value placed on a soil mulch as a factor in conserving soil moisture, are explained."

Gardner, Robert.    A method of measuring the capillary tension of soil moisture over a wide moisture range.    Soil Science 43(4):277-283.    illus.    April 1937.

"Progress on a new method of determining the capillary tension in soils has been reported.

"The method consists of determining a capillary tension curve for a grade of filter paper and then indirectly determining the tension curve for soils



Soil moisture. (Cont'd)

Gardner, Robert. (Cont'd)

by replacing them in contact with the paper at various moisture concentrations.

"Results show that capillary tension curves for soils may be determined by this method with sufficient precision to show the characteristic textural differences between soil types and may serve as a measure of moisture-storing capacity."

"References": p.283.

Ivie, J.O. and Richards, L.A. A meter for recording slow liquid flow. Rev. Sci. Instruments n. s. 8(3):86-89. illus. March 1937.

"A description is given of a reversible flow meter designed to work as part of a soil moisture flow gauge. The flow is measured by forming drops of water in a less dense nonmiscible liquid and electrically recording the drops. The operating characteristics are discussed and an empirical equation giving the effect of temperature and flow rate on drop size is derived."

Ramdas, L.A. and Katti, M.S. Agricultural meteorology. Studies on soil-moisture in relation to moisture in the surface layers of the atmosphere during the clear season at Loona. Indian Jour. Agr. Science 6(6):1163-1200. illus. December 1936.

Section I. Experiments on the evaporation and absorption of water vapour by different soils. - Section II. The moisture-variation index in relation to other properties of the soil. - Section III. Laboratory determination of the desiccating power of different soils.

"References": p.1200.

Soil Studies.

Bray, R.H. Chemical and physical changes in soil colloids with advancing development in Illinois soils. Soil Sci. 43(1):1-14. January 1937.

"References": pp.13-14.

Childs, E.C. The transport of water through heavy clay soils. III. Jour. Agr. Sci. [England] 26(4):527-545. illus. October 1936.

"References": p.545.

Pearse, G.K. A simple device for measuring the absorption rates of soils. Science n.s. 85(2210):459-460. illus. May 7, 1937.

"The Intermountain Forest and Range Experiment Station has developed an apparatus to measure the rate of absorption with a minimum of disturbance to the soil. The unit is inexpensive to construct, simple to operate, and its small size and light weight permit the study of soils in their undisturbed state on areas accessible only by foot."

Rogers, H.T. Some physico-chemical relationships found in four erosive soils of the Piedmont plateau region. Jour. Amer. Soc. Agron. 29(1):1-9. January 1937.

"Literature cited": p.9.

Sideri, D.I. On the formation of structure in soil: III. Mechanism of the swelling of soil. Soil Sci. 43(1):43-48. plate. January 1937.

"References": p.47.

Soil Studies. (Cont'd)

Singh, B.N. and Mathur, P.B. Apparatus for the measurement of shrinkage coefficient of soils. Soil Sci. 43(1):37-41. January 1937.

"References": p.41.

Smith, F.B., Brown, P.E., and Millar, H.C. Some effects of carbon dioxide on the decomposition of organic matter and the accumulation of nitrates in the soil. Soil Sci. 43(1):15-23. January 1937.

"References": p.23.

Strip Cropping.

Beeler, M.N. Crazy quilt cropping. Capper's Farmer 48(4):7, 55. illus. April 1937.

Strip cropping as practiced by farmers near LaCrosse, Wisconsin. Includes sequence of crops used.

Terracing.

Trees on terraces. Capper's Farmer 48(4):22. April 1937.

E. A. Kissick owner of one of the largest apple orchards in Delaware county, Oklahoma tells why, if he were doing it over, he would "lay out a system of terraces that would enable" him "to plant every tree in the orchard on a terrace."

Water Conservation.

Israelson, O.W. Planning for water conservation. Utah Farmer 57(12):3, 10, 15. Jan. 25, 1937.

Meerten, E.J. van. Waterholes for the conservation of flood-water on farms. Farming So. Africa. 12(130):5, 12. illus. January 1937.

"A description is given of the standardized waterhole in respect of which the Department of Agriculture and Forestry is prepared to grant financial assistance under the Soil-Erosion Scheme."

Morgan, A.E. Planned utilization of water resources. Civil Engin. 7(4): 255-259. illus. April 1937.

"Public control of water resources for the public good is a concept that is growing steadily in the United States, together with a realization of the advantages to be gained by coordinating and unifying development for all of the various water usages. But federal and state legislation is first necessary to permit the formation of organizations with the authority to undertake such unified development. Dr. Morgan suggests that this legislation may take the form of constitutional amendment or interpretation, organization of interstate water-control districts, or compacts between the states. The accompanying article, which is abstracted from a paper delivered on September 10, 1936, before the Third World Power Conference at Washington, D.C., concludes with a brief account of the work of the Tennessee Valley Authority, presented as an example of planning for the unified control of a large river system."



## Water Conservation. (Cont'd)

Upper Missouri association urges program for development of river system. So. Dak. State Planning Bd. Progress Rpt.3(9):1-3. Apr.24,1937.

"Manifold projects designed to promote irrigation; transportation; stream and run-off control; erosion control; and restoration of grass and forest lands along the Missouri River and its tributaries were recommended in a resolution adopted at a meeting in Yankton, April 15, 1937, of the Upper Missouri Water Conservation Association."

Text of resolution adopted is included.

## Wind Erosion.

Anti-dust law. Business Week no.391, page 42. Feb.27,1937.

"Black blizzards now are against the law in Kansas. The new statute declares that farmers must take steps whenever top soil starts to drift. Requisite action is outlined as plowing, furrowing, listing, chiseling or cultivating or 'by such other practical methods as have been demonstrated by experience as most effective.' If the farmers or their agents don't act, county commissioners are compelled to do the job and may levy an additional tax up to \$1 an acre to cover their expenses."

Entire item quoted.

Avance de los medanos sobre la ciudad de Puerto Mexico, y necesidad de emprender obras forestales para su fijacion. Mex.Dept.Forest. y de Caza y Pesca. Bol. 1(4):83-93. May-August 1936.

Advance of dunes on the city of Puerto Mexico, and necessity of undertaking forestry work to stop their movement.

"Copied from U.S.Forest Serv.Forestry Cur.Lit.n.s.4(1):15. January-February 1937."

Batten,H.M. The tragedy of the Culbin sands. Nat. Hist. 38(2):143-148. illus. September 1936.

An amazing catastrophe in the nature of a sandstorm which in 1694 changed a section of the fair Scottish countryside into a miniature Sahara and made time stand still for more than two centuries.

In 1695 "Parliament...passed an act prohibiting the pulling of bent, juniper, and broom, the binding roots of which help to make the sandhills permanent. The act is still in force. And one of the most interesting planting schemes is at present in progress in order to fix the dunes to prevent the sands working farther inland. Marram grass is planted at short intervals, and other plants, such as Carex arenaria, which have strong, running roots, have at last obtained a hold on some of the more dangerous slopes. Corsican pine, Sea Buckthorn and grey alder are systematically set by the foresters, who, are ever watchful for dangerous 'blow outs' which might result in wholesale movement."

Charles, Tudor. Western Kansas plans permanent curbs for wind erosion damage. Kansas Farmer 74(54):9,19. Apr.10,1937.

"The theme of the 2-day conference of Kansas farmers at Dodge City, as expressed by every speaker, was that emergency measures of soil conservation soon would have to be abandoned in favor of plans which would permanently solve the wind-erosion problem. Emergency measures can have no lasting benefit upon the agriculture of Western Kansas."



Wind Erosion. (Cont'd)

Charles, Tudor. (Cont'd)

Methods receiving most attention were moisture conservation by contouring, basin-listing, terracing and fallow; this to be followed by establishment of vegetative cover on considerable areas of land. Listing Sudan grass of Black Amber cane and leaving it on the field, was favorably discussed."

Kroodsma, R.F. The permanent fixation of sand dunes in Michigan. Jour. Forestry 35(4):365-371. illus. April 1937.

"Describes in detail the methods and costs of fixing moving sand dunes."

Smith, Wyman. Trees stop drifting dollars. Successful Farming 35(4):26, 97-98. illus. April 1937.

Soil drift in South Australia. Nature 139(3518):530. Apr. 3, 1937.

"Mr. F.H. Ratcliffe appears to hold the opinion that the processes taking place in that part of the world (South Australia) differ from the causes which have, and are, producing the man-made desert in other regions. The factors responsible for the destruction of the vegetation in Australia are drought, overgrazing by stock and the rabbit. The extension of the Sahara and the dust bowl in America are (omitting the rodent) being brought about by the same causes - excessive cultivation or grazing, or both combined. But the word 'drought' as used in Australia and America requires definition. This is the chief factor in the case. The actual results of the over-utilization are the same, whether the land is actually covered up by sand, or the top soil is blown away, or the soil deteriorates in situ; the spring water-level is lowered in the soil, not by drought as ordinarily understood by that word, but by the desiccation brought about by the acts of man. The end is a desert, and the water disappears from the surface and sinks to varying depths in the soil. As regards wind erosion, that is, dust storms, few travellers or inquirers who have studied desert regions, many of them man-made, can have failed to become acquainted with desert clouds of that type, whether consisting of sand or blown soil of valuable types. Mr. Ratcliffe has conceived the idea that the erosion or drift something apart. It would appear to be only a type.

Vuren, J.P.J. van. The problem of wind-eroded lands. Farming So. Africa 12(132):108-109, 125. illus. March 1937.

Causes, results and preventive measures for wind erosion in the Orange Free state and Transvaal, Union of South Africa.

Watt, A.S. Studies in the ecology of Breckland. II. On the origin and development of blow-outs. Journ. Ecology 25(1):91-112. illus. February 1937.

"In Breckland's vegetational and soil history wind erosion has played and still plays an important part. Broadly two kinds of erosion may be distinguished. The first, demonstrated on any dry windy day in March or early April by the drift of sand from newly tilled fields, may be described as frontal: in this type the causal winds blow more or less straight or direct. In the second type the causal winds are cyclonic: the erosion is local and a wind-furrow or blow-out is formed."

The article is a discussion of causes and effects of wind-blown sand. It is stated that "no blow-out can be formed where there is a continuous cover of higher plants stabilizing the soil. The opportunity is presented only where degeneration of the plant communities takes place."



Wind Erosion. (Cont'd)

Watt, A.S. (Cont'd)

"No correlation can be observed between the origin of blow-outs and rabbit activity."

Whitfield, C.J. Sand dunes in the Great Plains. Soil Conserv. 2(9):208-209. illus. March 1937.

"It appears from the studies made thus far that dune movement can be controlled by planting quick-growing, stooling varieties of grain sorghums such as 60-day maize and other crops adapted to the region."

BOOK AND PAMPHLET NOTES AND ABSTRACTS

Baldwin, H.I. and Brooks, C.F. Forests and floods in New Hampshire. New England Regional Planning Commission. Pub.47. Boston, Mass., 1936. 280.7 N44P

"The purpose of this report is to summarize the facts concerning the present influence of forests on floods in New England and especially in New Hampshire."

Condra, G.E. Conservation of land and water resources of Nebraska. Nebr. Univ. Conserv. and Survey Div. Conserv. Dept. Bull. 14. 46 pp. illus. Lincoln, December 1936. 99.47 M27 no.14.

"References": pp.41-46.

Topics discussed are: water resources; land problem areas including badlands, rough stony lands, tablelands, eroded drift and loess hills; irrigation reclamation; agricultural forestry; conservation of wild life habitat and water conservation.

Cross, P.G. Our friends the trees. 334 pp. illus. New York, E.P. Dutton & co., inc., 1936. 97.7 C882

DuPont de Nemours & Co., E.I. Blasting gully banks with explosives. 36pp., illus. Wilmington, Del., 1936. 56.7 D92

Description of methods employed to effect erosion control, construction of terraces and the accomplishment of reforestation and conservation projects.

Gray, G.D. All about the soya bean in agriculture, industry and commerce... with an introductory chapter by James L. North. 140pp. London, J. Bale, sons & Danielson, Ltd., 1936. 60.3 G79  
Bibliography; pp.136-137.

Griffiths, R.L. Wind erosion of soils in the agricultural areas. So. Aust. Dept. Agr. Bull. 317. 16pp., illus. Adelaide, 1936. 23 So84B  
"References": p.16.

Gustafson, A.F. Conservation of the soil. 312pp., illus. New York and London, McGraw-Hill book company, inc., 1937. 56.7 G97

A practical treatise in the field of erosion control. While it covers all types of erosion, by wind, water and wave, the viewpoint is chiefly agronomic. Chapter headings are as follows: Soil Erosion; Results of Soil Erosion; Influence of Precipitation and Latitude on Soil Erosion; Influence of Slope and Soil on Erosion; Influence of Natural Land Cover on Erosion; Maintenance

Gustafson, A.F. (Cont'd)

of Organic Matter and Fertilization and Rotation of Crops; Contour Tillage and Planting Essential; Contour Strip Cropping; Terraces; Meadows, Pastures and Forests; Control and Elimination of Gullies; Control of Wind Erosion; Control of Wave Erosion; Control of Erosion on Public Highways; Control of Floods.

Kansas legislative council. Research department. Summary and outline of the proposed bill for conservation of water resources. Kans. Leg. Council. Res. Dept. Pub. 51. 12pp., mimeogr. [Topeka?] 1936. 292 K13

Kansas state planning board. Recommendations for the improvement of agricultural conditions in the state of Kansas. v.p., mimeogr. Topeka, 1936. 280.7 K13Rc

Kansas state planning board. Water, its use and control in Kansas. An outline. 28pp., illus. Topeka, 1936. 280.7 K13W

"This report is intended to present a general picture of ways in which better utilization and control of water would add to the comfort and material welfare of the people of Kansas and suggest steps which must be taken if such betterments are to be realized."

It is the opinion of the Kansas state planning board that "adequate water conservancy legislation is a primary economic need of the state."

Keet, J.D.M. Report on drift sands in South Africa. South Africa. Dept. Agr. and Forests. Bull. 172. 41pp., illus. Pretoria, 1936. 24 So84P no. 172

Results of the survey of drift sands, origin, principles underlying reclamation and recommendations are discussed in the first part of the report.

Notes on methods employed in fixing drift sand in South Africa are given in Appendix C, pp. 32-34.

Leggette, R.M. Ground water in northwestern Pennsylvania; with analyses by Margaret D. Foster, W.L. Lamar and S.K. Love. Pa. Geol. Survey. ser. 4, Bull. W3. 215pp., illus., maps, charts. Harrisburg, 1936. 406 P383B

Love, H.H. Application of statistical methods to agricultural research... 501pp., illus. Shanghai, The Commercial Press, Limited, 1936. 251 L942

The author states in his preface that this book was written to fill the need for "a simple text combining in one volume methods for the measurement of variation, correlation, curve fitting, the probable error concept, and the analysis of variance."

He also states that "emphasis is placed on the interpretation and application of formulas rather than on their derivation and development."

Mavis, F.T. and Soucek, Edward. A summary of hydrologic data, Ralston Creek watershed. Iowa Univ. Studies Eng. Bull. 9. 70pp., illus. Iowa City, 1936. 290.9 I93

A report of an investigation conducted by the College of Engineering of the State University of Iowa in cooperation with the Bureau of Agricultural Engineering, United States Department of Agriculture.

Includes data on precipitation, runoff and ground water levels.

Oregon state planning board. Bibliography of the geology and mineral resources of Oregon, with digests and index to July 1, 1936. 224pp., multigr. Portland, Conger printing co., 1936. 241.65 Or3

Prepared by Ray C. Treasher and Edwin T. Hodge with assistance of W.P.A. project 498-(3)-A.



Ries, H. and Watson, T. L. Engineering geology. 750pp., illus. N.Y., John Wiley & sons, inc., 1936. 400 R33En Ed.5

Appendix, pp. 735-737. List of state geological surveys.

As indicated by the author's preface this text was prepared in an effort to assist in instructing engineers in at least those fundamental principles of geology which relate to engineering problems.

Partial contents: Rock-weathering and soils; Surface waters (rivers); Sub-surface waters; Geology of reservoirs and dams.

South Africa. Division of forestry. Annual report... for the year ended 31st March, 1936. 47pp., illus. Pretoria, 1936. 99.9 So84R 1935-36

The following statements on drift sands appear in the introduction: "Provision was made for the financial year 1936-37 for assistance to owners of land who voluntarily undertake the reclamation of drift sands on their properties. Under the schemes devised, the Government will pay a bonus on work undertaken at owner's own cost, or a subsidy on loans granted for reclamation work, and also a bonus on the purchase price of fencing material used for enclosing drift sands. The schemes closely correspond in principle to those adopted for anti-soil erosion works and will be administered through the same local committees.

"In view of the large extent of drift sands on Government and private properties in the divisions of Bredasdorp and Caledon, a District Forest Officer will be stationed in the locality to deal with drift sands on the Forest Reserves and to assist private owners in the work of reclamation...

"An important step in research work was the institution of long-range investigations into the influence of forests on water conservation and allied problems. Arrangements were made to set aside for the purpose the Jonkershoek Forest Reserve, near Stellenbosch, and a research station was established there toward the end of the year."

Throughout the report references are made to various attempts at erosion and drift sand control in the Government reserves.

South Dakota state planning board. First biennial report... submitted December 1936. 145pp., illus., mimeogr. Brookings, 1936. 280.7 So82B

The report includes information and recommendations concerning land use, tenancy, range land, the soil conservation act, surface water and bank erosion.

Southern field-crop enterprises including soil management [by] E. R. Alexander, W. S. Newman et al. 574pp., illus. Chicago, J. P. Lippincott company [c1937]

"A revised edition of a book prepared several years ago for vocational teachers of the southern region. Each of the twenty-one enterprises included are treated by specialists in the particular field.

"New sections on soil have been added. These are entitled: (1) Soils and other plant relationships; (2) Conservation and improvement of soils; (3) Land drainage; (4) Preventing soil erosion - terracing. The soil treatments in all sections of the book have been revised and improved, including suggested rotations, cover crops, green manure, culture, tillage, and soil management for the special crops and regions."

Southwest soil and water conference. Report of proceedings of the seventh... conference held at Stillwater, Oklahoma July 6 and 7, 1936. 83pp. A. and M. college printing department [Stillwater 1936] 56.9 So82

Partial contents: Progress of soil conservation work in region 4, by L. P. Merrill, pp. 5-8; The progress made in wind erosion control in the southern high plains region, by H. H. Finnell, pp. 9-11; The outstanding experimental re-



Southwest soil and water conference. (Cont'd)

sults in erosion control at Temple, Texas, by E.B. Deeter, pp.12-14; Watershed and hydrologic studies, by C.E. Ramser, pp.14-22; Progress in the central plains area - region no.7, by H.E. Winter, pp.22-23; America's erosion problems, by H.H. Bennett, pp.25-39; Soil and water conservation investigations, by G.W. Husgrave, pp.40-45; Recommendations for research relating to the control of wind erosion, by H.V. Goib, pp.45-51; Soil and water conservation on land utilization projects in Oklahoma and Texas, by Glen Briggs, pp.51-54; A study of gully formation and control in Oklahoma, by H.J. Harper, pp.54-64; The cost of terracing with power equipment, by D.G. Carter and W.C. Hulbert, pp.64-68; The importance of vegetative growth on erosion control, by A.E. Aldous, pp.69-72; Grass and legume studies in connection with pasture improvement and erosion control at the Red Plains soil conservation experiment station, by H.M. Elwell, pp.72-75.

Stapledon, R.G. A survey of the agricultural and waste lands of Wales; edited for The Cahn Hill Improvement Scheme by R.G. Stapledon. 143pp., maps. London, Faber and Faber Limited, [1936] 282 St2S

"Bibliography": pp.104-107.

It is recognized in Wales that the first necessity in relation to any schemes of land improvement and land utilization is a detailed survey of the existing conditions. Lack of funds prevented a complete land utilization survey so concentration was on "two fundamental issues - soil and vegetation."

Staples, R.R. Run-off and soil erosion tests in semi-arid Tanganyika territory. Second report. Tanganyika Territory. Dept. Vet. Sci. and Animal Husbandry. Annual Rept. 1935: 134-141. Government Printer, Dar Es Salaam, 1936. Folio 41.9 T15 1935

Data on the run-off and soil lost with varying systems of cultivation in a series of plots at Mpwapwa obtained in the 1934-35 season.

Sweetman, H.L. The biological control of insects, with a chapter on weed control. 461pp., illus. Ithaca, N.Y., Comstock publishing co., inc., 1936. 423 SW32

"References," pp.390-420.

"Glossary," pp.384-389.

Thomas, H.A. The hydraulics of flood movements in rivers. Ed.2., 70pp., illus. Pittsburgh, Pa., Carnegie Institute of Technology, 1937. 290 T362

"The purpose of this bulletin is to present those elements of the hydraulic theory of unsteady flow in open channels, which are needed in the solution of problems pertaining to the movement of flood waves in rivers, and to discuss various approximate methods which have been used or proposed for handling such problems. Much of this material has not been previously published, or is derived from sources not readily available to engineers." - Introduction.

Thompson, W.R. Moisture and farming in South Africa. 260pp., illus. [Johannesburg] Central News Agency, Limited, 1936. 340 T37

Chapter VI. Rainfall, soil erosion and run-off in South Africa.

Chapter VII. The role of evaporation in the dissipation of moisture.

Chapter VIII. Moisture dissipation through transpiration.

Chapter IX. The role of percolation in the dissipation of moisture.

"Bibliography:" pp.249-255.



Washington state planning council. Farm tenancy in Washington. A report to the President's farm tenancy committee. 28pp., mimeogr. Olympia, January 1937. 280.7 W27F

Prepared by B.H. Pubols and A.E. Orr of Washington Agricultural Experiment Station... R.G. McDole, Soil Conservation Service; and Fred W. Clemens, Managing Editor, Washington Farmer.

This report "gives the present status of farm tenure and trends in tenancy in Washington and in the United States, variations in tenancy within the state, prevailing types of tenancy, problems associated with tenancy, and conclusions and recommendations concerning farm tenancy."

Included in the summary of recommendations is the following statement: "We may conclude that the most important factor in conserving our land and human resources in so far as farm tenancy is concerned is a sound and equitable arrangement between the tenant and the landlord."

Washington state planning council. A master plan for forestry in Washington (preliminary and general); a statement of facts, outline of general plan, and recommendations for action. Wash. State Planning Council Res. Pub. 4. 55pp., illus., mimeogr. Olympia, 1936. 280.7 W27R

#### STATE PUBLICATIONS

##### Arizona

Arizona University. Arizona and its heritage. 29lpp. Tucson, University of Arizona [1936] (Bulletin, v. 7, no. 3. General bulletin no. 3) 280.008 Ar42  
Collection of articles relating to Arizona. Among them are the following: Conservation, by H.L. Shantz, pp. 7-10; Climate, by H.V. Smith, pp. 26-31; Soils, by W.T. McGeorge, pp. 31-37; Forests, by C.K. Cooperrider, pp. 53-60 and Indian agriculture, by H.L. Shantz, pp. 199-205.

Smith, G.E.P. Groundwater law in Arizona and neighboring states. Arizona Agr. Exp. Sta. Tech. Bull. 65. 9lpp., illus. Tucson, 1936. 100 Ar4[t]

##### Illinois

Burlison, W.L., Rusk, H.P. and Pieper, J.J. Pasture improvement and management. Ill. Agr. Exp. Sta. Circ. 465. Urbana, 1936. 100 Il6S[c]

"Grasses and legumes to check erosion on sloping fields, legumes to enrich the soil, more and better pastures to supply forage for the several millions of grazing animals on the farms of the state - are definite needs of Illinois agriculture.

"Eleven grasses and seven legumes adapted to Illinois conditions are described in this circular and their uses indicated."

##### Iowa

Iowa agricultural experiment station. Report on agricultural research for the year ending June 30, 1936. 2 parts. Ames, [1936] 100 Io9[a] 1935-36.

The State Soil Conservation Advisory Committee, pp. 19-20; Coordination of work at erosion stations, p. 27; Cooperation with Missouri in economic implications of soil erosion; Soil erosion experimental nursery, p. 38; Page county soil erosion farm, p. 39; Soil erosion investigations in Iowa, p. 40; Erosion control work in Iowa, p. 40; The establishment of an erosion control nursery, p. 41; Soil

## Iowa (Cont'd)

Iowa agricultural experiment station. (Cont'd)

erosion studies, p.49; Basin method treating pastures to prevent erosion, runoff and loss of fertility, p.50; Soil erosion reconnaissance survey of Iowa, p.69; Economic and social implications of the soil erosion control program of the Soil Conservation Service, Tarkio Creek watershed project, p.186.

Ramsay, G.R. Woodlands for Iowa farms. Iowa Agr.Col.Ext.Circ.222. 12pp., illus. Ames, 1936. 275.29 Io9  
Advantages, management and uses.

Schickele, Rainer. Farm tenure in Iowa. II. Facts on the farm tenure situation. Iowa Agr.Exp.Sta.Bull.356. 295pp., illus. Ames, February 1937. 100 Io9[b] no.356

"References on farm tenure in Iowa:" pp.295-296.

This bulletin is the second in a series of special studies on farm tenure in Iowa.

"The chief purpose of this bulletin is to make available a graphic and statistical summary of the more important facts pertaining to farm tenure in Iowa. It has not been our aim to interpret the data."

A table on p.264 indicates expected length of tenant occupancy on farms with various degrees of erosion.

Schickele, Rainer and Norman, C.A. Farm tenure in Iowa. 1. Tenancy problems and their relation to agricultural conservation. Iowa Agr.Exp.Sta.Bull. 354. 184pp., illus. Ames, January 1937. 100 Io9[b]

Prepared in Rural Social Science Section, Agricultural Economics Subsection, with the cooperation of the Bureau of Agricultural Economics, U.S.D.A., Agricultural Adjustment Administration, U.S.D.A., and the Land Utilization Division, Resettlement Administration.

## Missouri

Missouri agricultural college. Extension service. Annual report for 1936. 79pp., illus. Mo.Col.Agr.Ext.Circ.357. Columbia, February 1937. 275.29 I69C no.357

Soil conservation, pp.52-55.

## Nevada

Nevada agricultural experiment station. Annual report of the Board of control for the fiscal year ending June 30, 1935. 38pp., illus. Carson City, 1936. 100 N41S 1934-35

Listed among the active projects are the following:

Meteorology. Timber and snow studies and snow surveying; Forecasting the runoff of the Humboldt river, Nevada.

Irrigation. Studies in the reclamation of certain desert soils under irrigation from artesian wells in the Las Vegas Valley of southern Nevada; An inventory and history of the agricultural land resources of the basins of the Truckee, Carson, and Humboldt rivers, and minor streams.

Farm development. Land utilization and farm development studies; A study of the adjustments in farming by regions and type-of-farming areas, from the standpoint of agricultural adjustment and planning, including soil conservation.



New Mexico

Burnham, D.R. and Cole, J.S. Dry-land crops at the Tucumcari field station. New Mexico Agr. Exp. Sta. Bull. 244. 48pp., illus. State College, 1936. 100 N465[b]

In cooperation with the United States Department of Agriculture, Division of Dry Land Agriculture.

Suggestions are given for the prevention of soil blowing.

Ohio

Dodd, D.R. Erosion control in Ohio farming. Ohio Agr. Col. Ext. Bull. 186. 40pp., illus. Columbus, 1937. 275.29 Oh32

Oklahoma

McPheters, W.H. How to make and use the McPheters terracers. Okla. Agr. Col. Ext. Circ. 340. 15pp., illus. Stillwater, 1937. 275.29 Ok41C

Oregon

Jackman, E.R., Stephens, D.E. and Richards, D.E. Crested wheat grass in eastern Oregon. Oregon Agr. Col. Ext. Bull. 494. 38pp., illus. Corvallis, November 1936. 275.29 Or32B no. 494.

Detailed information about methods of planting and harvesting.

Uses include: pasture on former grain lands and on range lands; rotation crop with wheat; hay crop on dry or partly irrigated land; erosion control; planting on burned-over forest land.

Tennessee

Hondricks, H.E. A land use and soil management program for Tennessee. Tenn. Agr. Col. Ext. Pub. 197. 24pp., illus. Knoxville, 1936. 275.29 T25 no. 197

Texas

Fraps, G.S. and Fudge, J.F. Soils of Collin, Frio, Galveston, Midland, Potter and Van Zandt counties and the Trans-Pecos area. 54pp., tables. Texas Agr. Exp. Sta. Bull. 533. College Station, October 1936. 100 T31S[b] no. 533

Utah

Utah agricultural experiment station. Biennial report of the director 1934-35 and 1935-36. 84pp., illus. Logan, 1936. 100 Utl[b] no. 276.

Issued as Bulletin 276 under title "How Science Aids Utah Agriculture." Carbon county soil subject to erosion, p. 40.

"In some irrigated sections gullies have been started by allowing waste water to run in the same place for a long period of time."

Flooding and furrow methods of irrigation are described on pages 52-53.

The use of hydromechanics in a study of the control of groundwater is mentioned on p. 54.



West Virginia

Abrahamsen, M.A. Some economic aspects of the agricultural conservation program in West Virginia. W.Va. Agr. Exp. Sta. Mimeogr. Circ. 23. 35pp. Morgantown, April 1937. 100 W52M no. 23

Reprint and revision of Mimeograph Circulars nos. 17-18-19-21.

The following five types of soil-building practices are discussed: (1) growing green manure crops, (2) applying lime, (3) using superphosphate fertilizer, (4) seeding legumes, and (5) planting forest trees.

U.S. GOVERNMENT PUBLICATIONS

Dept. of Agriculture

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Much descriptive information is included. Concerning its use for erosion control the following statement is made: "While experience on the use of Lespedeza sericea for erosion control is still limited there is reason to believe that it will be a splendid erosion control plant. It grows well on eroded land, has a large root system that binds the soil, and it annually deposits large quantities of debris on the surface. Under a heavy cover of sericea summer rains cannot reach the soil directly, and the live roots, stems and debris hold the soil and cover it during winter..."

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"Tenancy has contributed to soil depletion; soil depletion has in turn contributed materially to the expansion of tenancy and the further impoverishment of tenants and croppers."

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